



UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office

Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO. <i>AS</i>
-----------------	-------------	----------------------	-------------------------------

EXAMINER

ART UNIT	PAPER NUMBER <i>5</i>
----------	-----------------------

DATE MAILED:

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/227,242

Applicant(s)

Miszczak et al.

Examiner

M. A. ELVE

Group Art Unit

1725

—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Status

- ☒ Responsive to communication(s) filed on 9/8/2000.
- ☒ This action is **FINAL**.
- ☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 1 1; 453 O.G. 213.

Disposition of Claims

- ☒ Claim(s) 1-27 is/are pending in the application.
- ☐ Of the above claim(s) _____ is/are withdrawn from consideration.
- ☐ Claim(s) _____ is/are allowed.
- ☒ Claim(s) 1-27 is/are rejected.
- ☐ Claim(s) _____ is/are objected to.
- ☐ Claim(s) _____ are subject to restriction or election requirement.

Application Papers

- ☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.
- ☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.
- ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

- ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
 - ☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been received.
 - ☐ received in Application No. (Series Code/Serial Number) _____.
 - ☐ received in this national stage application from the International Bureau (PCT Rule 1 7.2(a)).

*Certified copies not received: _____

Attachment(s)

- ☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____
- ☐ Interview Summary, PTO-413
- ☐ Notice of Reference(s) Cited, PTO-892
- ☐ Notice of Informal Patent Application, PTO-152
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Other _____

Office Action Summary

Art Unit: 1725

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nagarajan et al. (US Pat. 5,824,992) in view of James et al. (US Pat. 5,192,851) and Crockett et al. (US Pat. 5,365,036).

Nagarajan et al. discloses a metal core wire with a steel sheath. The core composition is between 0.001-12 wt% of the total metal core wire. Additionally, the core contains iron powder (abstract). The oxygen content of the metal-core wire weld deposits are affected by the shielding gas. The total metal core wire compositions contain the following approximate ranges, C (0.005-0.15 wt%), Mn (1.0-4.0 wt%) and Si (0.3-2.5 wt%) by total weight of the wire. The steel sheath contains the following approximate ranges, Mn (0.1-1.1 wt%), C(0.005-0.15 wt%), Ti, B, and the balance Fe. The metal core contains approximately C(0.005-0.030 wt%), Mn (0.5-2.5 wt%), Si (0.2-1.2 wt%), Ti (0.001-0.100 wt%), Fe (0.1-10.0 wt%) which yields the following combined compositions: Fe-Mn (0.6-12.5 wt%), Fe-Si (0.3-13.2 wt%), and Fe-Ti (0.101-10.1 wt%).

Analysis of the final weld deposit yields the presence of nitrogen (col. 2, lines 4-6; col. 4, lines 1-

Art Unit: 1725

65; col. 5, lines 1-65; col. 6, lines 1-65; col.7, lines 1-65 & col. 8, lines 1-45). Furthermore, it is well known in the art that steels contain trace amounts of nitrogen, phosphorous and sulfur, that is, P (≤ 0.04 wt%), S (≤ 0.03 wt%) and N (≤ 0.2 wt%) (ASM Handbooks). Nagarajan et al. does not teach the presence of aluminum and silicon in the steel sheath, the composition of the shielding gas, the exact core weight percent of the total wire or fume reduction.

James et al. discloses an electrode wire for electric arc welding. The core contains Mn, Si and the remainder of the core contains fused mixed oxide, desired alloying components and iron powder (abstract). The oxides contain Al_2O_3 . The proportion of the core is 15 to 28 wt% of the total wire. Shielding gas is an argon-carbon dioxide mixture containing 2 to 25 % CO_2 . (Col. 1, lines 65-66; col. 2, lines 13-17) It would have been obvious to one of ordinary skill in the art at the time of the invention to use the Si and Al and core composition as disclosed by James et al. in the Nagarajan et al. welding electrode because of strength enhancement due to the presence of aluminum and silicon.

Crockett et al. discloses a gas shielded electrode. The wire has a ferrous sheath and the core contains aluminum, titanium, carbon, manganese and silicon. The presence of aluminum reduces the fume amounts during welding. Solid wire welding had reduced fume generation with the presence of aluminum (abstract & col. 3, lines 25-50). It would have been obvious to one of ordinary skill in the art at the time of the invention to measure fume generation as taught by Crockett et al. for the Nagarajan et al. wire because it would characterize the welding wire and deposit more completely.

Art Unit: 1725

If the range of the prior art and claimed range do not overlap, obviousness still exists if the ranges are close enough that one would not expect a difference in properties. In re Woodruff 16 USPQ 2d 1934; Titanium Metals Corp. v. Banner 227 USP 773 (Fed. Cir. 1985); In re Aller 105 USPQ 233. Furthermore, the selection of reaction parameters, such as gaseous environments, would have been obvious. It is well settled that where patentability is predicated upon a change in a condition of prior art process, such as gaseous environments (argon and carbon dioxide concentrations), the change must be at least "critical", that is, it must lead to a new and unexpected result. The applicant has the burden of providing such proof of criticality. In re Aller 105 USPQ 233, 255 (CCPA 1955).

Response to Amendment

3. Upon carefully reviewing Applicant's arguments filed September 8, 2000 the Examiner acknowledges the amendments to the specification, the amendments to claims 1 & 15, the cancellation of claim 2 and the addition of claims 21-27.

4. Applicant's arguments filed September 8, 2000 (paper # 4) have been fully considered but they are not persuasive.

Art Unit: 1725

Applicant argues that Nagarajan et al. does not disclose a carbon content in the metal sheath that is less than 0.005 wt%. The examiner respectfully disagrees. The exact amounts of each of the constituents as presently claimed are not disclosed in the prior art; however, the prior art compositions closely approximate or overlap applicant's claimed composition. It has been held that one of ordinary skill in the art at the time of the invention would have considered the claimed compositions to have been obvious because close approximation or overlapping ranges in a composition is considered to establish a prima facie case of obviousness. See In re Malagari, 182 USPQ 549, Titanium Metals v. Banner 227 USPQ 773, In re Nehrenberg 126 USPQ 383.

The applicant argues that Nagarajan et al. does not disclose or suggest reduction of fume generation. The examiner respectfully disagrees. The 35 USC 103 claim rejections are were based on a combination of art, that is, instant claims were unpatentable over Nagarajan et al. in view of James et al. and Crockett et al. Furthermore, unobviousness cannot be established by attacking the references individually when the rejection is based on a combination of references. In re Novak 16 USPQ 2d 2041, 2043 (Fed. Cir., BPAI 1989); In re Merck & Co. 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986); In re Keller 208 USPQ 871 (CCPA 1981); *Ex parte Varga* 189 USPQ 204; *Ex parte Campbell* 172 USPQ 91; In re Scheckler 168 USPQ 716 (CCPA 1971); In re Young 159 USPQ 725; In re Lyons 150 USPQ 741.

The applicant argues that neither James et al. nor Crockett et al. disclose or suggest the carbon content in the sheath as instant claims. The examiner respectfully disagrees because Crockett et al. does presence of carbon and the 35 USC 103 claim rejections are were based on a

Art Unit: 1725

combination of art, that is, instant claims were unpatentable over Nagarajan et al. in view of James et al. and Crockett et al. Furthermore, unobviousness cannot be established by attacking the references individually when the rejection is based on a combination of references. In re Novak 16 USPQ 2d 2041, 2043 (Fed. Cir., BPAI 1989); In re Merck & Co. 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986); In re Keller 208 USPQ 871 (CCPA 1981); *Ex parte Varga* 189 USPQ 204; *Ex parte Campbell* 172 USPQ 91; In re Scheckler 168 USPQ 716 (CCPA 1971); In re Young 159 USPQ 725; In re Lyons 150 USPQ 741.

The applicant argues that the Nagarajan et al. does not teach the following metal core weld wire carbon compositions: (0.005-0.013 wt% C), (0.002-0.0047 wt% C) and (0.0025-0.0046 wt% C). The examiner respectfully disagrees because Nagarajan et al. teaches a carbon content of (0.005-0.15 wt% C). Furthermore, the exact amounts of each of the constituents as presently claimed are not disclosed in the prior art. However, the prior art compositions closely approximate or overlap applicant's claimed composition. It has been held that one of ordinary skill in the art at the time of the invention would have considered the claimed compositions to have been obvious because close approximation or overlapping ranges in a composition is considered to establish a prima facie case of obviousness. See In re Malagari, 182 USPQ 549, Titanium Metals v. Banner 227 USPQ 773, In re Nehrenberg 126 USPQ 383.

The applicant argues that the prior art does not teach the presence of Fe-Mn, Fe-Si, Fe-Mn-Si and Fe-Ti. The examiner respectfully disagrees because the Nagarajan et al. metal core contains approximately C(0.005-0.030 wt%), Mn (0.5-2.5 wt%), Si (0.2-1.2 wt%), Ti (0.001-

Art Unit: 1725

0.100 wt%), Fe (0.1-10.0 wt%) which yields the following combined compositions: Fe-Mn (0.6-12.5 wt%), Fe-Si (0.3-13.2 wt%), and Fe-Ti (0.101-10.1 wt%). Analysis of the final weld deposit yields the presence of nitrogen (col. 2, lines 4-6; col. 4, lines 1-65; col. 5, lines 1-65; col. 6, lines 1-65; col.7, lines 1-65 & col. 8, lines 1-45) .

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Art Unit: 1725

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Bushey et al. (US Pat. 5,095,191); Keegan et al. (US Pat. 5,857,141).

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to M. Alexandra Elve whose telephone number is (703) 308-0092. The examiner can normally be reached Monday to Friday from 6:30 AM to 3:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pat Ryan, can be reached on (703) 308-2383. The fax number for the group is (703) 872-9386.

Any inquiry of general nature to the status of this application or proceeding should be directed to the group receptionist whose telephone number is (703) 308-0661.



mae
October 20, 2000.